



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

S1523584

D6026-110
Job Sheet 174305-A

Accounting Job RD17-1027-01

**Part No:** D6026-110**Job Qty:** 6 ea**Part Name:** Crosstube Material**Part Weight:** 0 lbs**Status:** Scheduled**Priority:** Medium**Job Created:** 2/11/19**Job Tracking No:****Due Date:** 7/31/18**Created By:** Jesse White**Type:** R+D**Description:**

Note: TBD D6026 REV.C IPP REV:A 16.09.16 NEW ISSUE DD VERF:JFS IPP REV:B 17.12.14 AS PER DWG
REV.C DD VERF:JFS

Ship Via:**Bill of Materials****Job Routing**

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
120	QC	6 pcs		7/31/18	0.00	0.00	QC18		
130	HandFinish	6 pcs		7/31/18	0.00	2.00	HandFinish1		
135	QC	6 pcs		7/31/18	0.00	0.00	QC7-5		DAG
140	Packaging	6 pcs		7/31/18	0.00	0.00	Packaging3-2		21
150	QC21-SA	6 Ea		7/31/18	0.00	0.00	QC21		9-89 FEB 13 2019

Part Op 120 - Ensure Material certification comply to Dwg D6026
Descriptions: 140 - LOCATION : LG003

Job BOM

Job BOM records could not be found.

Job Allocations

Job Allocations could not be found.

Part Specifications

Specifications could not be found.

Plex 2/11/19 11:07 AM dart.white.jesse

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor		
			QC / QA Coordinator		
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					



Dart Aerospace Ltd.
1270 Aberdeen St
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K6A 1K7
Canada

Split 12

D6026-110
Job Sheet 174305

Accounting Job RD17-1027-01



Job Qty: ~~16 ea~~



Status: Scheduled

Job Tracking No:

Created By: Steven Hemmerich

Description:

Note: TBD D6026 REV.C IPP REV:A 16.09.16 NEW ISSUE DD VERF:JFS IPP REV:B 17.12.14 AS PER DWG REV.C DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	16 pcs		7/30/18	0.00	0.00	Purchasing		AT 18/10/24
110	Packaging	16 pcs		7/30/18	0.00	0.00	Packaging2		AT 18/10/24
120	QC	16 pcs		7/30/18	0.00	0.00	QC18		AT 18/10/24
130	HandFinish	16 pcs		7/31/18	0.00	5.33	HandFinish1		
135	QC	16 pcs		7/31/18	0.00	0.00	QC7-5		
140	Packaging	16 pcs		7/31/18	0.00	0.00	Packaging3-2		
150	QC21-SA	16 Ea		7/31/18	0.00	0.00	QC21		

Part Op **100** - Issue P/O **439193** (D6026-110) A) Extrude crosstube material as per Dwg D6026 B) Material certification is required *** **EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.*** MUST BE WELL PACKAGE, IF NOT IT WILL BE REFUSE***** Dwg D6026

110 - Ensure material certification is attached

120 - Ensure Material certification comply to Dwg D6026

140 - LOCATION : LG003

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6026-110P	Crosstube Material	16 pcs (1 ea)	100-Purchasing	SH0789

Job Allocations

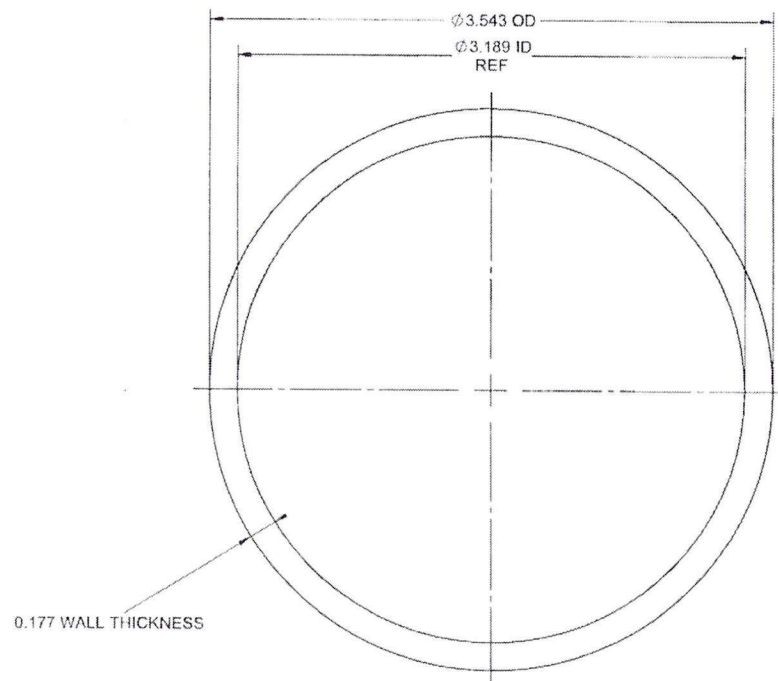
Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6026-110P	16	0	0

Part Specifications

Specifications could not be found.

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SPECIFICATION CONTROL DRAWING



D6026-XXX CROSSTUBE MATERIAL

WHERE XXX IS THE LENGTH IN INCHES
EG. 103" LONG TUBE: D6026-103

NOTES:

- 1) MATERIAL: 3.543 OD X 0.177 WALL 7075-T73/T73510/T73511/AAW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11 OR ASTM B216 OR ASTM B241) SEAMLESS ALUMINUM TUBE.
MINIMUM ULTIMATE TENSILE STRENGTH = 66 KSI
MINIMUM YIELD TENSILE STRENGTH = 56 KSI
MINIMUM ELONGATION = 12%
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO SENDING THE EXTRUSION TO AN OUTSIDE VENDOR
- 3) TOLERANCES: O.D.: +/- 0.008 MEAN (+/- 0.016 INCLUDING OVALITY)
WALL: +/- 0.006 MEAN (+/- 0.017 INCLUDING ECCENTRICITY)
LENGTH: XXX +0.500/-0.000
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

C	UPDATED MATERIAL PROPERTIES, TOLERANCES AND ADD CHEMICAL CONVERSION COAT	ML	17.05.25
B	ADDED NOTE 9	ML	17.01.20
A	NEW ISSUE	ML	16.03.24
REV.	DESCRIPTION	BY	DATE
DESIGN	ML	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D6026 REV. C SHEET 1 OF 1 SCALE NTS COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS UNCLASSIFIED AND IS NOT TO BE RELEASED OR DISSEMINATED TO ANY OTHER PARTY WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.	
DRAWN	ML		
CHECKED	AJS		
MFG. APPR.	LL		
APPROVED	WM		
DE APPR.	CP	CROSSTUBE MATERIAL	
DATE	17.05.25		

RELEASED
2017-08-01
5617-607

APPROVED

D6026-110

EXTRUSION INSPECTION SHEET



		3.535-3.541 SIDE A		SIDE B		Measurement unit Inches		Symbol "		ULTRA SONIC MEASUREMENTS					
TUBE #	TOTAL LENGTH	DIA		DIA		INSIDE DIA	wall thickness measured w/vern		Strightness at 12" in middle	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4
DWG		R1	R2	R1	R2						Middle	N/A			
1		3.535	3.5355	3.5305	3.537	3.188	0.1795	0.177		N/A	Middle				
2		3.537	3.539	3.533	3.5405	3.182	0.1785	0.177		N/A	Middle				
3		3.535	3.539	3.535	3.539	3.189	0.1765	0.1785		N/A	Middle				
4		3.538	3.539	3.5395	3.537	3.191	0.177	0.178		N/A	Middle				
5		3.532	3.538	3.537	3.538	3.186	0.1775	0.1785		N/A	Middle				
6										N/A	Middle				
7										N/A	Middle				
8										N/A	Middle				
9										N/A	Middle				
10										N/A	Middle				
11										N/A	Middle				
12										N/A	Middle				
13										N/A	Middle				
14										N/A	Middle				
15										N/A	Middle				
16										N/A	Middle				
PART #		P/O#				BATCH #				Notes:					



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Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039197**

Supplier: ALU001-VU
Aluminiumwerk Unna AG
630-3033 SOUTH PARKER RD
AURORA, CO 80014 USA
Phone: 303 755 5672
Fax: 303 755 5936

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO039197
PO Date: 3/5/18
Due Date:
Purchase Order Revision:
Revision Date:
Ship-To Contact: Hemmerich, Steven
Phone: 613-632-5200 Ext: 281
shemmerich@dartaero.com

Via: Journey Freight
Pymt Terms: Net 30
Freight Terms:

Special Comments: *****EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.*****

MUST BE WELL PACKAGED, IF NOT IT WILL BE REFUSED

*****ELONGATION PROPERTIES FOR MATERIAL MUST BE 12% OR GREATER.

C OF C IS REQUIRED

Items

Line Item	Part	Supplier Part No	Item No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	D6025-120P			Crosstube Material. As per drawing D6025 RevC	Firmed	6/5/18	25 pcs 29	0 pcs 24	25 pcs	\$401.00/pcs At 12/10/24	\$10,025.00
Line Item Note Temper to T73, T73510 or T73511											
2	D6027-115P			Crosstube Material	Firmed	6/5/18	19 pcs 24	0 pcs 24	19 pcs	\$533.00/pcs At 12/10/24	\$10,127.00
Line Item Note Temper to T73, T73510 or T73511											
3	D6026-110P			Crosstube Material	Firmed	6/5/18	16 pcs 18	0 pcs 18	16 pcs	\$466.00/pcs At 12/10/24	\$7,456.00
Line Item Note Temper to T73, T73510 or T73511											
										Grand Total:	\$27,608.00

Order Notes

Order Notes

Procurement Quality Clauses

A005 RIGHT OF ENTRY
A008 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION SENT TO DART AEROSPACE)
A012 CHEMICAL AND PHYSICAL TEST REPORTS
A016 PERSONNEL QUALIFICATION
A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)
A026 CERTIFICATION OF MATERIAL CONFORMANCE
A041 QUALITY MANAGEMENT SYSTEM
A042 DART NOTIFICATION BY SUPPLIER
A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.



Plex 3/7/18 10:04 AM dart.hemmerich.steven

Packing List Aluminiumwerk Uina AG

Page 1 of 1



ALUMINUMWERK UINA AG

Commission-No.: 70411		Order		Article		Box marking	
Item No.: 300				Outer Diameter (Inch): 3,543		DART AEROSPACE /	
Customer PO: PO39197				Inner Diameter (Inch): 3,189		P.O. 39197 / D6026-110	
Customer: Dart Aerospace				Wall (Inch): 0,177		MADE IN GERMANY /	
Date: 08.08.2018				Length (Feet): 9,17		DEST.: HAWKESBURY ONT, CANADA	
Drawing: 89,99 x 4,5							
Comments: We hereby declare, that the wooden packing material are totally free from bark and apparently free from live plant pests.							
Box No.		Box dimensions		Total number of pieces and weights		Cast/Heat-Groups in the box	
Length (Inch)		Width (Inch)		Height (Inch)		Volume (cbm)	
125,984		22,441		22,441		1,04	
Pieces		Net lbs		Tare lbs		Gross lbs	
18		370,376		190,7		561,076	
Position		Pieces		Cast-No.		Heat-No.	
18		8507		1308897			

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.
Client: 1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer: 1463/18

Cert No. / No. du certificat:

Bestellnummer: P039197

Order No. / No. de commande

Auftrag: 70411/300

Our Reference/Notre Reference:

Produkt: Rohre nahtlos gepresst und gezogen

Product / Produit: Tubes seamless extruded and drawn

Spezifikation: AMS - WW - T - 700/7A; Spezifikation Dart Aerospace LTD. (elongation 12%)

Specification:

Werkstoff: 7075

Alloy/Alliage:

Abmessung

Size / Dimension

3,543 INCH x 3,189 INCH x 0,177 INCH
D0626-110P

Zustand: T 73

Temper/Etat:

x 110,000 FEET

Kennzeichnung

Marking/Marquage:

ALUnna - Cert No. 1463/18 - AMS-WW-T-700/7A - 3.543" OD x 0.177" WT - 7075 - T 73 - Cast No. 8507 - Heat Lot No. 1308897 -
ALUnna Order Confirmation No. 70411/300 - P.O. 39197

Lieferung

Delivered Material / Matériel délivré:

pcs.

lbs

18

370

Country of Manufacture: Germany

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni	Na
Charge/ min.			1,2		2,1	0,18	5,1							
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20						
8507/18	0,106	0,174	1,471	0,050	2,451	0,209	5,798	0,046	0,0030	0,0380	0,0001	0,0018	0,0053	0,0002

Hydrogen content: 0,10

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	electrical conductivity (IACS)
	66,0	56,0	12,0			
1	75,2	65,1	13,5			38,9

max. RMS 25 - max. 12,1 µ"

Ergebnis der Prüfungen:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

mergardtri

09.08.2018

Certified acc. DIN EN ISO 9001:2015 and DIN EN 9100:2016

valid until 2019-11-10

TÜV Nord - Cert. - Reg. No.: 44 100 131576 and 44 117 131576

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany

ALUnna
Abnahmebeauftragter

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 06026-110
 DATE: 18/10/24

PO / BATCH NO.: P0039197 / S120938

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 18
 QUANTITY INSPECTED: 18
 QUANTITY REJECTED: 0

THICKNESS ORDERED: -
 THICKNESS RECEIVED: -
 SHEET SIZE ORDERED: -
 SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y ☒ N	
CORRECT FINISH	☒ N	
CORROSION	Y ☒ N	
CORRECT GRAIN DIRECTION	☒ N	
CORRECT MATERIAL PER M-DRAWING	☒ N	AMS WW-T-7047
CORRECT THICKNESS	☒ N	
PHOTO REQUIRED	Y ☒ N	
CORRECT REF # TO LINK CERT	☒ N	P0039197
CORRECT MATERIAL IDENTIFICATION	☒ N	
CORRECT M# ON THE MATERIAL	☒ N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y ☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y ☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u> DATE: <u>18/10/24</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in